par les seules données A,B,c, sans autre angle ou ligne quelconque, mais la ligne c est heterogene avec les nombres A,B,C; et si on avait une equation quelconque entre A,B,C et c, on en pourrait tirer la valeur de c en A,B,C, d'où il resulteroit que c est egale à un nombre, ce qui est absurde. Donc c ne peut entrer dans la valeur de C, et on a simplement $C = \phi\,(A,B.)$" Leslie committed the unaccountable mistake of supposing the argument here stated, to be, that "that the line c is of a nature heterogeneous to the angles A and B, and therefore cannot be compounded with these quantities"—whereas the argument plainly is, that c, which is a line, cannot be expressed in terms solely of A,B, and C, which are numbers. "The quantities A,B, C," says Playfair, in his exposition of Legendre's reasoning, "are angles; they are of the same nature with numbers, or mere expressions of ratio, and, according to the language of Algebra, are of no dimension. The quantity c, on the other hand, is the base of a triangle, that is to say, a straight line, or a quantity of one dimension. Of the four quantities, therefore, A,B,C,c, the first three are of no dimensions, and the fourth or last is of one dimension. No equation therefore can exist, involving all these four quantities and them only: for if there did, a value of c might be found in terms of A,B, and C; and c would therefore be equal to a quantity of no dimensions: which is impossible."

In this reasoning it is assumed, that, because C is *determined by* A,B,c, therefore C can be *expressed in terms of* A,B,c. Now Legendre does not prove that when a quantity is determined by certain others, it can be expressed in terms of them; and I affirm that *such a principle, without limitation, is not true.*

For example, consider the angle C of the triangle A B C. And let it be observed that I mean the angle itself, that is, the inclination of a and b to one another, and not the numerical value of the angle, calculated upon the supposition that a right angle, or any other angle, has been assumed as a unit of measure. The angle C is *determined by* the sides a,b,c; yet it cannot be expressed in terms of these quantities alone; because *the value of an angle can only be indicated by pointing out its relation to some other angle or angles*; and therefore cannot be expressed by means simply of lines. It is true that *the numerical value* of C may be expressed in terms of a,b, and c: viz, in an equation where only the ratios of a,b, and c occur, the ratios being numbers. Thus, if $b = \beta a$, and $c = \gamma a$, we might have

$$\text{numerical value of } C = f\,(\beta,\gamma.)$$

But this is altogether a different thing from saying that *C itself*, the angle properly so called, the inclination of a and b to one another,